

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

Claims 1-16 (Cancelled).

Claim 17 (Currently Amended): A formaldehyde-free aqueous binder composition comprising:

a binder component (A) obtainable by reacting at least one alkanolamine with at least one carboxylic anhydride and, optionally, treating the reaction product with a base; and

a binder component ~~B~~ (B) which comprises at least one carbohydrate;

wherein binder component (A) comprises the reaction product of at least one alkanolamine with at least one carboxylic anhydride in an equivalent ratio of amine and hydroxy groups (NH+OH) to carboxy groups (COOH) of at least 0.4; and

wherein the equivalent ratio of amine and hydroxy groups (NH+OH) to carboxy groups (COOH) in the final binder composition, including binder components (A) and (B), is 2.0 or less.

Claim 18 (Cancelled).

Claim 19 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 17, wherein binder component (A) comprises the reaction product of at least one alkanolamine with at least one carboxylic anhydride in an equivalent ratio of amine and hydroxy groups (NH+OH) to carboxy groups (COOH) of at least 0.6.

Claim 20 (Cancelled).

Claim 21 (Currently Amended): The ~~formaldehyde-free~~ formaldehyde-free aqueous binder composition of claim ~~18~~ 17, wherein the equivalent ratio of amine and hydroxy groups (NH+OH) to carboxy groups (COOH) in the final binder composition is 1.7

or less.

Claim 22 (Currently Amended): The formaldehyde-free aqueous binder composition of ~~claim 18~~ of claim 17, which comprises 60 wt.% or more of binder component (A); and 40 wt.% or less of binder component (B), based on the total solids content of components (A) and (B).

Claim 23 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 22, which comprises 60 to 95 wt.% of binder component (A); and 5 to 40 wt.% of binder component (B), based on the total solids content of components (A) and (B).

Claim 24 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 23, which comprises 60 to 80 wt.% of binder component (A); and 20 to 40 wt.% of binder component (B), based on the total solids content of components (A) and (B).

Claim 25 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 17, wherein the at least one carboxylic anhydride is selected from cycloaliphatic and/or aromatic anhydrides.

Claim 26 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 25, wherein the carboxylic anhydride comprises a combination of a cycloaliphatic and an aromatic anhydride.

Claim 27 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 26, wherein the molar ratio of cycloaliphatic anhydride to aromatic anhydride is within the range of from 0.1 to 10.

Claim 28 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 26, wherein the molar ratio of cycloaliphatic anhydride to aromatic anhydride is within the range of from 0.5 to 3.

Claim 29 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 25, wherein cycloaliphatic anhydride is selected from the group consisting of tetrahydrophthalic anhydride, hexahydrophthalic anhydride and methyl-tetrahydrophthalic anhydride.

Claim 30 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 25, wherein the aromatic anhydride is selected from the group consisting of phthalic anhydride, methylphthalic anhydride, trimellitic anhydride and pyromellitic dianhydride.

Claim 31 (Currently Amended): The formaldehyde-free aqueous binder composition of claim 17, wherein the ~~aldanolamine~~ alkanolamine is selected from the group consisting of diethanolamine, triethanolamine, diisopropanolamine, triisopropanolamine, methyldiethanolamine, ethyldiethanolamine, n-butyldiethanolamine, methyl-diisopropanolamine, ethylisopropanolamine, 3-amino-1,2-propanediol, 2-amino-1,3-propanediol and tris(hydroxymethyl)aminomethane.

Claim 32 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 17, wherein the at least one carbohydrate is selected from the group consisting of monosaccharides, disaccharides, oligosaccharides, and water-soluble polysaccharides.

Claim 33 (Currently Amended): The formaldehyde-free aqueous binder composition of claim 32, wherein the monosaccharides comprise xylose, ~~glucose,~~ glucose, and fructose; the disaccharides comprise sucrose, maltose and lactose; the oligosaccharides comprise glucose syrup and fructose syrup; and the water-soluble polysaccharides comprise pectin, dextrin, starch, modified starch and starch derivatives.

Claim 34 (Previously Presented): The formaldehyde-free aqueous binder composition of claim 17, further comprising a curing accelerator and, optionally, other conventional binder additives.

Claim 35 (Previously Presented): A method of producing a bonded mineral fiber product which comprises the steps of contacting the mineral fibers or mineral fiber product with a formaldehyde-free aqueous binder composition according to claim 17 and curing the binder composition.

Claim 36 (Previously Presented): A mineral fiber product comprising mineral fibers in contact with a cured binder composition according to claim 17.

Claim 37 (New): The formaldehyde-free aqueous binder composition of claim 17, wherein the equivalent ratio of amine and hydroxy groups ($\text{NH}+\text{OH}$) to carboxy groups (COOH) in the final binder composition, including binder components (A) and (B), is within the range of 1.3 to 1.5.